WHAT IS CLAIMED IS:

1. A method for sharing the bandwidth over a wireless channel between a plurality of first stations and a plurality of second stations in a wireless local area network (WLAN) having an access point (AP), the method comprising the steps of:

periodically transmitting, by said AP, a control frame comprising data indicative of a predetermined time interval during which each of said first stations can occupy the wireless channel for the data transmissions onto said wireless channel;

determining, by said AP, whether said predetermined time interval specified in said control frame is longer than an interval of time following receipt of a last frame from one of said first stations and before a scheduled start of a set of next frames from at least one of said second stations;

if so, waiting, by said AP, for point interframe spacing interval (PIFS) after which said next frames from said second stations are permitted to transmit to said AP over said wireless channel; and,

inhibiting transmission from said plurality of first stations to said AP.

2. The method of claim 1, further comprising the step of permitting said plurality of second stations to transmit a data packet to said AP over said wireless channel, said data packet including a shorter duration than said predetermined time period specified in said control signal.

3. The method of claim 1, wherein, if said predetermined time interval specified in said control frame is less than said interval of time before the scheduled start of said next frame, transmitting, by said AP, a data packet to said plurality of first and second stations over said wireless channel, said data packet including a shorter duration than said predetermined time period specified in said control signal.

4. The method of claim 1, wherein, if said predetermined time interval specified in said control frame is less than said interval of time before the scheduled start of said next frame, permitting said plurality of first stations to transmit a data packet to said AP over said wireless channel, said data packet including a shorter duration than said predetermined time period specified in said control signal.

5. The method of claim 1, further comprising the steps of:

determining whether said wireless channel between said AP and said plurality of first and second stations is available;

if so, inhibiting transmission from the plurality of said first stations to said AP;

transmitting, from said AP to said plurality of first stations, a high priority signal indicative of a duration that said plurality of second stations is allowed to occupy said wireless channel; and,

permitting said plurality of second stations to transmit a data packet to said AP over said wireless channel, said data packet including a shorter duration than said predetermined time period specified in said control signal.

6. The method of claim 1, wherein said plurality of first stations includes 802.11 compliant systems.

7. The method of claim 1, wherein said plurality of second stations includes HIPERLAN/2 compliant systems.

8. The method of claim 1, wherein said plurality of first stations can transmit data frames without permission from said AP and said plurality of second stations can transmit data frames when permitted by said AP.

9. A method for sharing the bandwidth over a wireless channel between a plurality of first stations and a plurality of second stations in a wireless local area network (WLAN) having an access point (AP), the method comprising the steps of:

transmitting a control frame having a contention free period (CFP) mode and a contention period (CP) mode, said control frame including data indicative of a predetermined time interval that each of said first stations has to complete data transmission onto said wireless channel;

determining whether said wireless channel between said AP and said plurality of first and second stations is available;

if said wireless channel is available during said CP mode, polling at said AP to inhibit transmission of said plurality of first stations over said wireless channel; and,

permitting said plurality of second stations to transmit a data packet to said AP

over said wireless channel, said data packet including a shorter duration than said predetermined time period specified in said control signal.

10. The method of claim 9, wherein the step of permitting said plurality of second stations to transmit a data packet to said AP over said wireless channel further comprises the steps of:

determining, by said AP, whether said predetermined time interval specified in said control frame is longer than an interval of time following receipt of a last frame from one of said first stations and before a scheduled start of a set of next frames from at least one of said second stations;

if so, determining a range of time $[t_1, t_2]$ to control said wireless channel by said AP; and,

controlling said wireless channel within said time range to permit said plurality of second stations to transmit a data packet.

11. The method of claim 10, wherein said range of time is determined according to the following equation.

$[t_1, t_2] =$ *[-1* (TXOP_Limit + QoS CF-Poll frame duration + SIFS),*

-1 QoS CF-Poll frame duration + SIFS),*

wherein *TXOP_Limit* represents said predetermined time period that said plurality of first stations can transmit data frames after said wireless channel is determined to be available, *QoS CF-Poll frame duration* represents the duration of a QoS CF-Poll frame

used to instruct said AP to inhibit transmission from said plurality of first stations, and *SIFS* represents the duration of a Short Interframe Space interval.

12. The method of claim 10, wherein, if said wireless channel is unavailable, permitting said plurality of second stations to transmit a data packet to said AP over said wireless channel immediately when said wireless channel becomes available.

13. The method of claim 10, wherein, if said predetermined time interval specified in said control frame is less than said interval of time before the scheduled start of said next frame, transmitting, by said AP, a data packet to said plurality of first and second stations over said wireless channel, said data packet including a shorter duration than said predetermined time period specified in said control signal.

14. The method of claim 10, wherein, if said predetermined time interval specified in said control frame is less than said interval of time before the scheduled start of said next frame, permitting said plurality of first stations to transmit a data packet to said AP over said wireless channel, said data packet including a shorter duration than said predetermined time period specified in said control signal.

15. The method of claim 9, wherein, if said wireless channel is available during said CFP mode, the method further comprises the steps of:

transmitting, from said AP to said plurality of first and second stations, a high priority signal indicative of a duration that said plurality of first and second stations is allowed to occupy said wireless channel; and,

permitting said plurality of second stations to transmit a data packet to said AP over said wireless channel, said data packet including a shorter duration than said predetermined time period specified in said control signal.

16. The method of claim 9, wherein said plurality of first stations includes 802.11 compliant systems.

17. The method of claim 9, wherein said plurality of first stations can transmit data frames without permission from said AP and said plurality of second stations can transmit data frames when permitted by said AP.

18. The method of claim 10, wherein said plurality of second stations includes HIPERLAN/2 compliant systems.

19. A system local area network station for receiving and transmitting data over a wireless channel between a plurality of first stations and a plurality of second stations in a wireless local area network (WLAN) having an access point (AP), comprising:

a receiver means for receiving data on said wireless channel;

a CCHC circuit configured to allocate a predetermined time interval for each of said first and second stations to initiate data transmission onto said wireless channel; and,

a signal processing circuit coupled to said CCHC to transmit and receive signals to and from said plurality of first and second stations, said signal processing circuit processes signals received therein to permit said plurality of second stations to transmit a data packet to said AP over said wireless channel, said data packet including a shorter duration than said predetermined time period specified in said control signal.

20. The system of claim 19, further comprising a transmitter means for transmitting data on said wireless channel.

21. The system of claim 19, wherein said CCHC further operates to inhibit transmission from said plurality of first and said second stations when permitting said plurality of second stations to transmit a data packet.

22. The system of claim 19, wherein said CCHC further operates to control said wireless channel within a specified range of time $[t_1, t_2]$ to permit said plurality of second stations to transmit a data packet.

23. The system of claim 22, wherein said time range $[t_1, t_2]$ is determined according to the following equation:

$[t_1, t_2] =$ *[-1* (TXOP_Limit + QoS CF-Poll frame duration + SIFS), -1* QoS CF-Poll frame duration + SIFS),*

wherein *TXOP_Limit* represents said predetermined time period that said plurality of first stations can transmit data frames after said wireless channel is determined to be available , *QoS CF-Poll frame duration* represents the duration of a QoS CF-Poll frame used to instruct said AP to inhibit transmission from said plurality of first stations, and *SIFS* represents the duration of a Short Interframe Space interval.

24. The system of claim 19, wherein said CCHC further operates to transmit a data packet to said plurality of first and second stations over said wireless channel if said predetermined time interval is less than the time left before a scheduled start of a next frame by said plurality of second stations.

25. The system of claim 19, wherein said CCHC further operates to permit transmission of said plurality of first second stations to transmit a data packet having a shorter duration than said predetermined time interval over said wireless channel if said predetermined time interval is less than the time left before a scheduled start of a next frame by said plurality of second stations.

26. The system of claim 19, wherein said plurality of first stations includes 802.11 compliant systems.

27. The method of claim 19, wherein said plurality of second stations includes HIPERLAN/2 compliant systems.

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